



Studies on price spread of potato in Meghalaya: A temporal analysis

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ABSTRACT

In Meghalaya, potato is grown twice a year. The climate of the state is congenial for the potato production throughout the year. The present paper demonstrated the potato production, disposal and its price spread of major channels in the selected markets. Economic benefit point of view the channel-III which is direct channel has been observed beneficial but practically it is not advisable; hence, the channel-II has been found next to the direct channel through which net price received by potato grower has been observed higher than that of others whereas channel-I has been preferred because the maximum produce has been disposed. Therefore, channel-I needs to be strengthened through technological intervention like value addition in the crop. Further, the price spread analysis is an insight for improvement in the market for unscrupulous practices adopted by different intermediaries in the potato market.

Key words: Meghalaya, potato, supply, value addition

INTRODUCTION

Potato is a “cool climate crop”, with the temperature being the primary constraining variable. Potato was consumed by more than one billion people in the world. It is a high-quality vegetable as well as food crop. Potato (*Solanum tuberosum* L.) is one of the prominent food crops in the world after rice and wheat in terms of human consumption (Gastelo et al., 2014), while the direct consumption as human food is 31.3 kg per capita (per year) (FAOSTAT, 2014). Hence, Potato is supplementing meat and milk products by decreasing energy intake and also by decreasing food cost. Potato plays multiple and prominent roles in neighborhood food systems and for food security (FAO, 2008). By providing income generation opportunities as a cash crop and generating employment, potato contributes to alleviating poverty (Scott et al., 2000). Further, it speaks to a significant source of vitality, with a high conveyance of vitality per unit land, water and time, and are a prominent wellspring of mineral deposits

and nutrients for the eating regimen (Anderson et al., 2010). In tropical regions, potato ought to be developed where the atmosphere is tempered by elevation (1500 – 4200 m) or at lower heights gave the harvest is developed during the cool season. The perfect condition for tuberization is a night temperature of around 16°C, while ideal yields are gotten where mean everyday temperatures are in the 18-20°C territory. The climate of the state of Meghalaya is highly congenial for cultivation of potato throughout the year.

Meghalaya has diverse agro-climatic zones, ranging from temperate to tropical, which offer countless scope for cultivation of temperate as well as tropical fruits and vegetables. Potato occupies a key position in the cropping patterns in Meghalaya and significantly shares to rural agrarian economy. There are two potato crop seasons (*Summer* crop and *Winter* crop). “The average productivity of potato in the Meghalaya state produced 9.2 tons per hectare almost half that of the national average”

(CPRI, 2006). Factors like rain fed cultivation, non-availability of quality seed, high disease incidence, etc. contribute to low potato yields. The state has however high per capita potato utilization (93 kg) which is higher than even the national level potato consumption (17 kg) in the nation. The state likewise has the scope of having proportionately more region under potato altogether cropped region, than significant potato delivering conditions of the nation. "The local varieties *Lah Saw*, *Lah syntiew* and *Lah Taretetc.* have been recognized for their good taste mainly for home consumption. High yielding varieties like *Kufri Jyoti* which occupies the largest area among others like, *Kufri Megha* and others cultivar of potato. The newly introduced variety *Kufri Giriraj* is gaining popularity because of its high yield and resistance to late blight." (CPRI, 2006).

In spite of having favorable climatic conditions including technological back-up for potato in the state; the state could not come-up in significant contribution of potato production in the country. The potato growers are mostly illiterate with marginal and small landholding without good technologies, unorganized and difficulty in marketing in hilly terrains especially in remote villages due to lack of roads and transport facilities. Hence, the research and development expenditures in North Eastern Hill Region should be enforced to develop small size of machinery with the intent to reduce cost of human labour (Singh et al., 2019). Non-availability of finance led them to distress sell to their attractive surpluses just after harvest at a low price (Singh et al., 2020). Meghalaya has favourable condition to grow vegetables (Sri et al., 2020). To some extent, contract farming model of main lands in India has protected the potato growers from its price uncertainty (Tripathi et al., 2005). Marketing through Self-Help Group (SHG) may prove fruitful as a distribution strategy as women are willing to undertake entrepreneurial activities (Kumari et al., 2019). Hence, temporal analysis of supply chain of potato in Meghalaya is immense. Therefore, keeping in view the facts about potato in the state of Meghalaya the present paper is designed in same line.

MATERIALS AND METHODS

Selection of district, market and respondents

The study was conducted in East Khasi Hills (here after; EKH) district of Meghalaya which contributes about 63.63 % of the total area and 68.90 % of total production of potato in the state. Three markets namely regulated market (Mawiong), weekly market (Smit market) and daily market (Bara Bazar, Shillong) were selected as marketed surplus were more in these markets of EKH district. A sample of 36 numbers of respondents, including trader, wholesaler, retailer and potato growers were interviewed for collecting primary data. Smit village has been selected purposively because it was one of the highest potatoes producing villages in EKH district in both the seasons from where a sample of 10 potato growers were drawn.

Data collection and analysis

The potato in the state of Meghalaya practiced in two seasons viz; summer and winter season. Therefore, primary data were collected for both the seasons from the same respondents of potato growers as well as the marketing agencies. The respondents were interviewed twice for summer and winter season as potato is grown in two seasons. Data were collected using pre-tested well-structured schedule through personal interview of the respondents for the crop year 2019-20. The primary data includes season wise production of potato at household level as well as disposal of the same to different channels. Further, the primary data on per unit marketing cost incurred by producers as well as different intermediaries involved in business of potato and also the price offered by intermediaries and consumers for potato were collected.

Analytical techniques

Marketing cost

The total cost incurred on marketing either in cash or in kind by the producer seller and by the various intermediaries involved in the sale and purchase of potato till the commodities reaches the ultimate consumer, may be computed as:

$$C = C_F + C_{m1} + C_{m2} + C_{m3} + \dots + C_{mi}$$

$$C = C_F + \Sigma C_{mi} \text{ Where,}$$

C = Total cost of marketing of the potato

C_F = Cost paid by the producer at the time the produce leaves the farm till he sells it

C_{mi} = Cost incurred by the i^{th} middleman in the process of buying and selling potato

Marketing margin of middlemen

It is the difference between the total payments (cost + purchase price) and receipts (sale price) of the middlemen (i^{th} agency). It is expressed as:

$$A_{mi} = P_{ri} - (P_{pi} + C_{mi}) \text{ Where,}$$

A_{mi} = Absolute marketing margin of i^{th} middlemen

P_{ri} = Total value of receipts per unit (sale price)

P_{pi} = Purchased value per unit (purchased price)

C_{mi} = Cost incurred on marketing per unit

Percentage margin of middleman

To work out the percentage share of margin of middleman following formula has been used:

Percentage margin of middleman

$$(P_{mi}) = P_{Ri} - (P_{pi} + C_{mi}) / P_{pi} \times 100 \text{ Where,}$$

P_{Ri} = Total value of receipts per unit of produce (sale price)

P_{pi} = Purchase value of goods per unit of produce (purchase price)

C_{mi} = Cost incurred in marketing per unit.

Thus, it includes the profit of the middleman and the returns.

Producer's share in consumer's price

The price received by the producer expressed in terms of percentage of the retail price (*i.e.*, the price paid by the consumer) is the producer's share.

$$P_s = (P_f / P_r) \times 100 \text{ Where,}$$

P_s = Producer's share in the consumer rupee.

P_f = Price received by the farmer per unit of output

P_r = Retail price per unit of output

Price spread

It is the difference between the price paid by consumer and the price received by the producer for an equivalent quantity of farm produce. It was calculated by using the following formula.

$$P_s = \{(P_r - P_f) / P_r\} \times 100 \text{ Where,}$$

P_s = Producer's share in the consumer rupee.

P_f = Price received by the farmer per unit of outputs

P_A = Retail price per unit of output, and

$$P_f = P_A - C_F \text{ Where,}$$

P_f = Net price receive by producer

P_A = Wholesale price

C_F = Marketing cost incurred by producer

Hence,

$$\text{Price spread} = P_c - P_f \text{ Where,}$$

P_c = Price paid by consumer

P_f = Price received by the producer

Marketing efficiency

It is defined as the effectiveness or competence with which a market structure performs its designated function. This will be computed using the Acharya's modified marketing efficiency (MME) approach (Acharya and Agarwal, 2011) given as:

$$\text{MME} = FP / (MC + MM) \text{ Where,}$$

MME = Modified measure of marketing efficiency

FP = Price received by farmers

MC = Marketing cost

MM = Marketing margins.

RESULTS AND DISCUSSION

Disposal pattern of potato

For the disposal of potato from the grower to the ultimate consumer three major marketing channels *viz*, i) Channel-I: Producer → Traders → Wholesaler → Retailer → Consumer, ii) Channel-II: Producer → Wholesaler → Retailer → Consumer and iii) Channel-III: Producer → Consumer are used

The highest quantity (69.01%) of the potato produced in *summer* season was observed to be disposed through traders which was highest followed by wholesalers, retailers and small portion straightway sold to the consumer (Table 1). Whereas, in *winter* season it was estimated that 55.25 % of the total household produce of potato through same channel. Around 25.94 % and 38.25 % of the produce was disposed through wholesaler in *summer* and *winter* season, respectively which was higher in *winter* season compared to the *summer* season. Remaining 5.05 % and 6.23 % of potato disposal has been estimated as direct marketing.

The overall, disposal of potato from farm to consumer has been estimated of 62.13 %, 45.20 % and

8.16 % through channel-I, channel-II and channel-III, respectively. Hence, analysis of disposal pattern has

revealed that after harvest, the large chunk of potato has been taken directly by either traders or wholesaler.

Table 1. Disposal pattern of potato through different channels (kg)

Marketing channel	Summer potato	Winter potato	Overall
Channel-I	3081.30(69.01)	1803.91(55.25)	4885.21(62.13)
Channel-II	1158.22(25.94)	1257.68(38.52)	2415.9(45.2)
Channel-III	225.48(5.05)	203.41(6.23)	428.89(8.16)
Total	4465.00 (100.00)	3265.00 (100.00)	7730.00 (100.00)

Source: Field Survey, Note: Figures in the parentheses indicate percentage to the total production

Price spread analysis

Price spread of summer potato

Price spread analysis is the mirror of any of market. It includes the marketing cost and margins through which efficiency of a market and the channel may easily be known for further technical and administrative interventions in the market for a particular commodity. The results (Table 2) showed that price spread of potato in selected market during summer season has been observed higher in the channel-I (37.64%) which was followed by channel-

II (34.21%) and channel-III (5.57%). This has been witnessed by the marketing cost and margin, whereas marketing cost was higher in channel-I (12.89%) and followed by channel-II (11.42%) and channel-III (5.57%). Similarly, the marketing margin was also has been observed at higher side in the channel-I (24.75%) and channel-II (22.79%). Hence, analysis revealed that marketing cost and margin impacted the price spread and further its impact has been reflected on net price received by potato growers. The higher is the price spread, the lower the net price received by the potato grower and vice-versa.

Table 2. Price spread of summer potato

	Channel -I	Channel -II	Channel -III
Marketing cost	268.79 (12.89)	228.41 (11.42)	105.83 (5.57)
Marketing margin	516.21(24.75)	455.81 (22.79)	-
Price spread	785.00 (37.64)	684.22 (34.21)	105.83 (5.57)
Net price received by producer	1300.00 (62.35)	1316.78 (65.84)	1794.17 (94.43)
Consumer price	2085.00	2000.00	1900.00

Source: Field Survey, Note: Figures in the parentheses indicate percentage to the total production

Price spread of winter potato

Similarly, in the winter season of winter the price spread has been observed high in the channel-I (35.18%) followed by channel-II (29.44%) and channel-III (4.50%). The marketing cost as well

as marketing margin under channel-I has been estimated 10.09 % and 25.09 %, respectively which were higher than the channel-II as estimated of 9.15 % and 20.02 %, respectively and followed by channel-III. The net price received by potato

Table 3. Price spread of winter potato

	Channel- I	Channel -II	Channel- III
Marketing cost	272.52 (10.09)	236.07 (9.15)	107.89 (4.50)
Marketing margin	677.48 (25.09)	523.45 (20.2)	-
Price spread	950.00 (35.18)	759.52 (29.44)	107.89 (4.50)
Net price received by producer	1750.00 (64.81)	1814.40 (70.32)	2292.11(95.50)
Consumer price	2700.00	2580.00	2300.00

Source: Field survey; Note: Figures in the parentheses indicate percentage to the total production

producer has been observed higher in the channel-III (95.50%) followed by channel-II (70.32%) and channel-I (64.81%). The higher the price spread of the channel, lower the net price received by the producer under the particular channel in the market and vice-versa (Table 3).

Hence, season wise price spread analysis revealed that winter potato production more price fetching crop compared to the summer season potato production. consequently, the net price of potato received by grower was observed to be higher during winter season. Therefore, winter season potato production was more remunerative to the farmers of the state.

CONCLUSION

Therefore, it can be concluded that the channel-I was found to be preferred in both the season of potato production through which highest produce has been disposed to the market. The net price received by the potato grower was estimated to be higher in channel-III, but practically it is not advisable as all the time potato growers cannot sit in the market for selling their produce. Hence, the channel-II was observed to be comparative better for realizing high net price by the potato growers. The channel-I is found to be most preferred channel from quantity disposal point of view. Hence, the channel-I need to intervene not only through technology but also administrative point of view. The study recommends the winter potato production than summer season.

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